

DATE PREPARED: <b>June 13, 2007</b>		<b>ISS PAYLOAD OFFICE PIRN/EXCEPTION FORM</b>		<b>PAGE 1 OF 5</b>	
Doc. No., <b>SSP 57213, Initial Release</b> Rev. & Title: <b>Alpha Magnetic Spectrometer (AMS) Interface Control Document</b>			PIRN No: <b>57213-NA-0011</b>		
TITLE: <b>AMS (Alpha Magnetic Spectrometer) – PVGF Cable Tie Down Exceedance</b>					
<b>Originator:</b> Name: <b>Trent Martin</b> Agency: <b>NASA JSC AMS Project Office / EA</b> Phone: <b>281-483-3296</b> Email: <b>trent.d.martin@nasa.gov</b>		<b>PIRN Type:</b> <input type="checkbox"/> Standard PIRN <input checked="" type="checkbox"/> Exception		<b>FAX Approval Signatures to this Number:</b> <b>314-777-2866</b>	
<b>Utilization Change Engineer:</b> Name: <b>Leonardo Cornejo</b> Agency: <b>Boeing PEI</b> Phone: <b>281-226-4644</b> Email: <b>leonardo.a.cornejo@boeing.com</b>		<b>SSCN/CR</b> <b>N/A</b>		<b>RELATED PIRN No.:</b> <b>N/A</b>	
Agency Tracking No.: <b>57213-0007</b>		<b>SYSTEM/ELEMENT AFFECTED &amp; STAGE EFFECTIVITY:</b> <b>AMS – Launch through End Of Life</b>			
REASON FOR CHANGE OR REQUIREMENT(S) VIOLATION: <b>AMS exceeds PVGF cable tie-down requirement defined in SSP-57003, Paragraphs 3.7.3.3.4-B.</b>					
PARAGRAPHS, FIGURES, TABLES AFFECTED (For PIRN use only)					
<u>Page</u>	<u>Paragraph(s)</u>	<u>Figures(s)</u>	<u>Table(s)</u>	<u>R</u>	<u>A</u>
3-75	3.7.3.3.4-B	N/A	N/A		
AFFECTED INTERFACING PARTIES					
	SIGNATURE & ORGANIZATION	DATE	SIGNATURE & ORGANIZATION	DATE	SIGNATURE & ORGANIZATION
C O N C U R	OZ3		PCB		Boeing EVA
	Boeing PEI		Boeing EVR		NASA EVA
	S&MA		ER3		
	AMS		OM7		
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**SSP 57003 Requirement:**

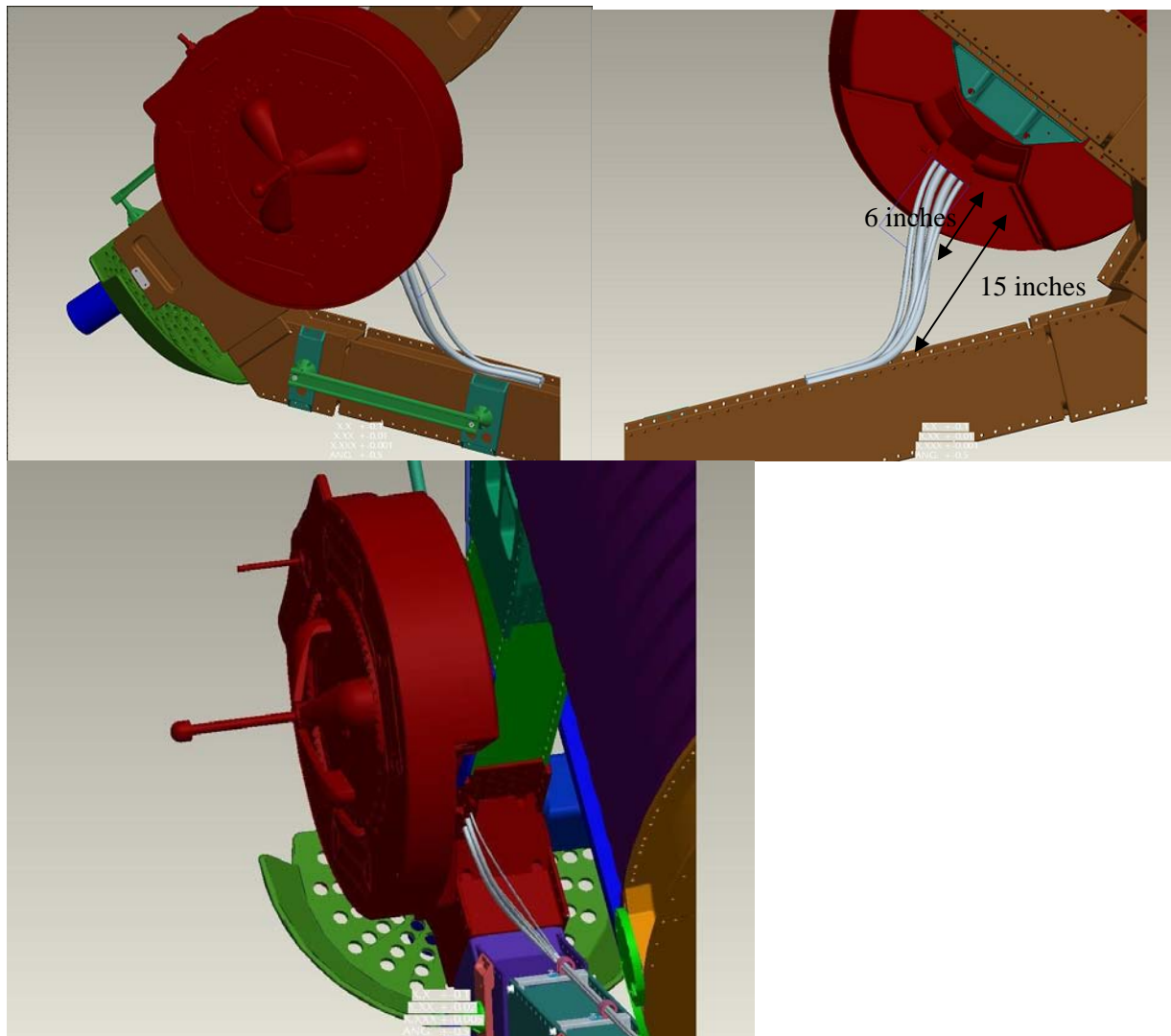
**Requirement Number:** 3.7.3.3.4-B  
**Requirement Title:** ATTACHED PAYLOAD ELECTRICAL INTERFACE  
HARDWARE

- B. The PVGF cable harness shall be secured to the payload within 6.0 inches of the cable harness exit bracket. The user shall be responsible for routing and securing the harness to ensure it is outside of the SSRMS and EVA clearance zone as specified in NSTS-21000-IDD-ISS.

**Proposed AMS Payload Exception:**

**Requirement Number:** 3.7.3.3.4-B  
**Requirement Title:** ATTACHED PAYLOAD ELECTRICAL INTERFACE  
HARDWARE

- B. The PVGF cable harness shall be secured to the payload within 6.0 inches of the cable harness exit bracket. The user shall be responsible for routing and securing the harness to ensure it is outside of the SSRMS and EVA clearance zone as specified in NSTS-21000-IDD-ISS, **except for the AMS payload that will secure the cable within ~15 inches as there are no other tie-down points as can be seen in Figure 3.7.3.3.4-AMS-01: AMS PVGF Cable Tie-Down Violation.**



**Figure 3.7.3.3.4-AMS-01: AMS PVGF Cable Tie-Down Violation**

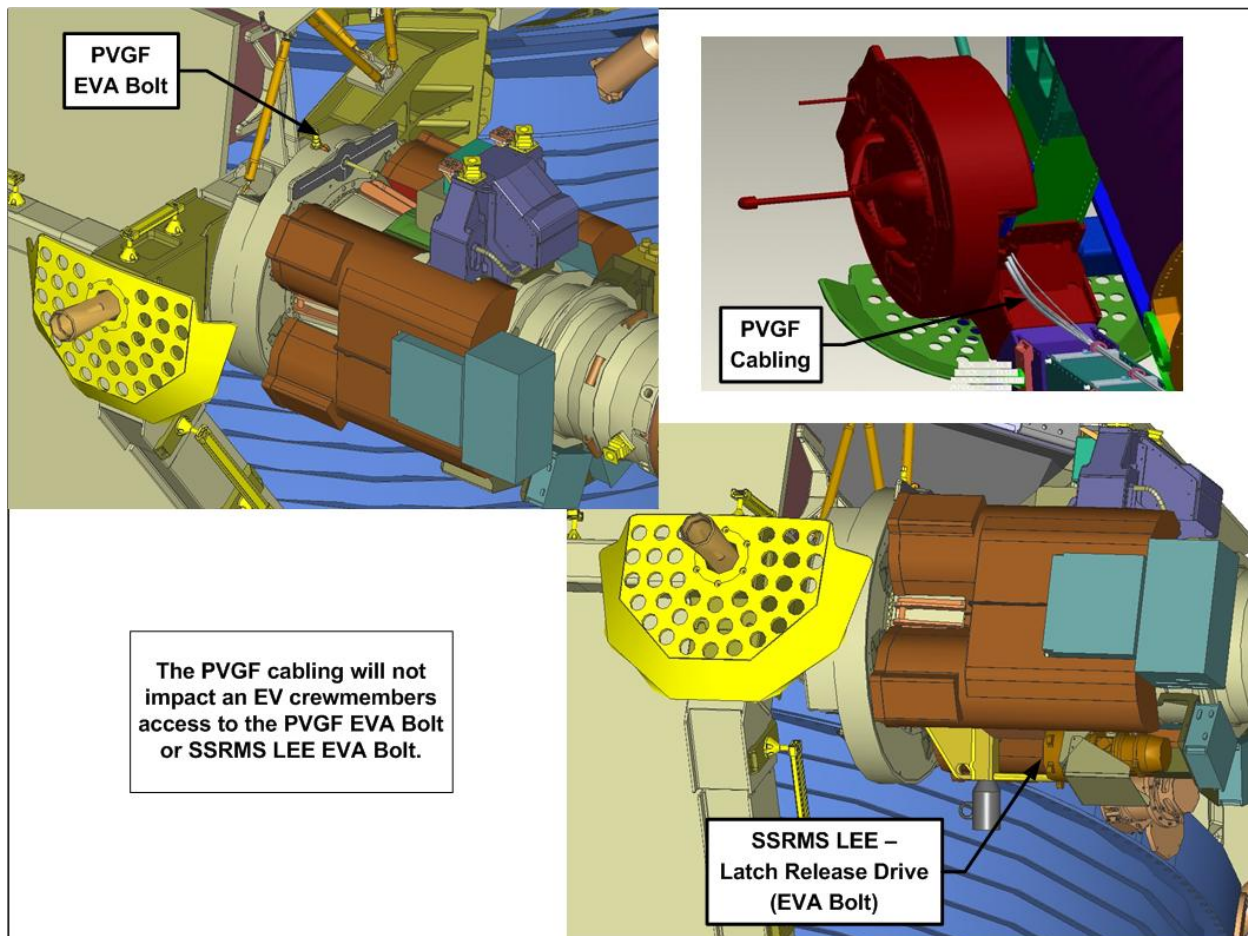
**Rationale:**

As shown in the figure, there are no tie-down points available at the required 6 inch location. The first tie-down location is approximately 15” from the PVGF cable departure point. There are no alternative PVGF mounting locations. Rotating the PVGF does not work with the current design. Standard practice in the aerospace industry calls for cable tie-downs every 18 inches, so we believe that this should be acceptable.

### PEI Analysis:

A vibration issue was identified for this violation. ER3 requested an analysis from MacDonald Dettwiler Space and Advanced Robotics Limited (MDA). MDA's report SRMS.123638 Rev A determined that the PVGF cable exit clamp will have no structural issues. Based on this report, ER3 provided concurrence via e-mail (attached) on January 16, 2009. PEI agrees with MDA's analysis results.

Per Crew Consensus Report (CCR): AMS NBL 11.12.02 (Attached), EVA access to the PVGF contingency release bolt is acceptable. Boeing EVA provided PEI with Figure 3.7.3.3.4-AMS-02: PVGF EVA Bolt and SSRMS LEE EVA Bolt (shown below) to demonstrate that the AMS PVGF will not impact a crewmember access to both of these EVA bolts. PEI concurs with CCR AMS NBL 11.12.02 and with Boeing EVA Figure 3.7.3.3.4-AMS-02 which demonstrate that the PVGF Cable tie-down requirement violation does not impact EVA.



**Figure 3.7.3.3.4-AMS-02: PVGF EVA Bolt and SSRMS LEE EVA Bolt**

**PEI Recommendation:**

Approve as written.

**Operational Constraints: (As Needed)**

None identified by PEI

**Operational Constraints Rationale: (As Needed)**

None identified by PEI

**PTR Recommendation:**

TBD

**PCB Disposition:**

TBD